

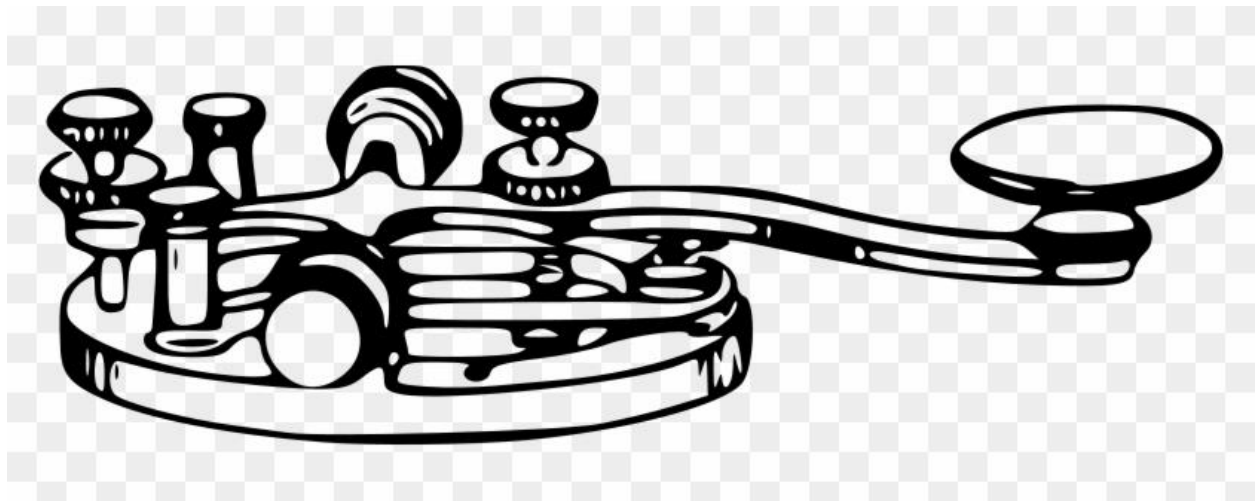


QSA-5

Marin Amateur Radio Society Monthly Newsletter

Established 1933

January 2024



When all else fails, you can count on Amateur Radio

From Our President:

President's letter will resume next month

From the Editor:

Happy New Year to all! I don't know about you, but 2023 went by quickly. After having gone through a global pandemic that sidelined life for a few years, we're finally back to a relatively normal state. I hope everyone survived the holidays and the oh so special brand of stress family gatherings can create. I'm just kidding (sort of). Here's to a brilliant 2024.

There's some important subject matter within the pages of the QSA-5 this month regarding the club. Please take the time to read the meeting minutes and the club news section. I wrote a piece regarding the new Quansheng UV-K5/K6 radio, which is changing the entry level handheld radio market. I'll be following up this article with additional articles geared towards our newer members, to both the club and amateur radio. Thanks to everyone who provided material for this month's issue. I couldn't do the QSA-5 each month without your help. I was traveling a great deal during the holidays, so putting this edition together was done literally on the road. I apologize if I missed including anything you may have sent to me. If you have any questions, ideas, or comments, feel free to email me. Happy New Year!

QSA-5Editor@w6sg.net



New Members:

Mark Steiner KD6CW - Mill Valley



Stuart Green KN6AQG – Ross

Paul Perez KM6VBM - San Francisco



“Your parents hath given you a name. And the FCC hath given you another...”



Marin Amateur Radio Society – Board of Directors Meeting

Dec. 14, 2023

Call to Order: 1930 hrs.

Attendance

President: Ken Brownfield AB6JR

Director: Rich Cochran AG6QR

Vice President: Tom Jordan KG6TCM

Director: Jeff Young KM6Y

Secretary: Jim Saltzgaber KM6WWY

Trustee K6GWE: Brian Cooley K6EZX

Treasurer: Bruce Bartel N6VLB

Trustee W6SG: Marc Bruvry KF6VNT

Director: Steve Toquinto KB6HOH

Adopt agenda: Remove New Business Item 4, Election of board officers -MSC.

Approve minutes: of Nov 9, 2023-MSC

Secretary's Report Jim Saltzgaber: Minutes is QSA-5

Treasurer's Report Bruce Bartel: Report is QSA-5 Balance is \$81k, less Mesh special fund. No paint checks have cleared. Reimbursement to Rob Rolands \$200

for club house cleaning. MSC by show of hands. Reimbursement to Milt and Michael for repeaters - \$400 +/- MSC by show of hands. Request to set up new account after first of year for NBAM Mesh Grant Special Account -MSC Club Members Present: Ann Shores K6SHO, Ed Essick K6ELE, Curtis Ardourel WA6UDS, Rob Rolands NZ6J, Pan Witherspoon N6PDW, Stan Witherspoon AI6NF, Skip Fedanzo KJ6ARL, Larry Bradley KK6QPE.

Committee and Other Reports

Membership: Curtis Ardourel WA6UDS- 166 members. 106% OF LAST YEARS MEMBERSHIP. Renewal notices to go out next month. Will include request for donations to Clubhouse Painting Fund.

Facilities: SkipFedanzo KJ6ARL- Rob Rolands request that a regular cleaning schedule be established for cleaning the clubhouse. Determined that no board action required as this is within the scope of the Facilities Committee. Skip – Painting project is in progress. Painters found that the back sliding door for garage is in bad condition. Estimate is \$1500 for resurfacing the door before painting. Bruce Bartel -Stairs to second story were not included in exterior painting quote. This is not immediately required. Skip will get a bid from the painting contractor. Jeff Moved that the additional work be approved, Seconded, and carried by show of hands. Skip announced that he will need to back off from the facilities duties for a while as he has too many other projects going on at this time. Rob – We need a “warm body” who lives in Mill Valley for a while, apart from himself and Michael Fischer. Ken Brownfield asked Skip if he had anyone in mind who was interested in assisting. Skip said he had not spoken with anyone prior to this meeting. Ken then inquired if anyone on the board was available to do the facilities job or know of anyone who could do it.

Public Service: Rob Rolands MZ6J/Pam Whitherspoon N6PDW/Stan Whitherspoon AI6NF– Agenda item later in the meeting.

Technical: Milt Hyams KM6ASI- not present. Steve Toquinto - Rob and Dan Healy were recently on Mt. Barnabe doing repeater repairs. A new antenna is required, \$1,094.86 from Tel-Wave. The Heliac feed line PDF processed with CutePDF evaluation edition www.CutePDF.com as tested and found good. There are problems with other items, but we need a new antenna to start with. We

will not require county assistance to replace this antenna. Moved by Steve Toquinto to approve funds to buy new antenna, including shipping NTE \$1300. Seconded and carried by show of hands.

VOAD/RCV: Skip Fedanzo KJ6ARL-Working on training for next year, planning for Golden Eagle 2024 drill in the spring, along with planning for tabletop workshops with CBO's. RCV is being included in the planning for EOC staffing. Possibly will be an additional room adjacent to the EOC for non-county entities, i.e. community-based organizations (CBO's) and individual cities and towns.

VE Testing: Ken Brownfield AB6JR- Next VE session will be Jan. 13, 2024. We have two applicants, and one applicant for April's VE session. Ken will be Stepping down and Jim Saltzgaber KM6WWY will be the new VE lead.

NBAM: Jeff Young KM6Y- This will be Jeff's last NBAM report. Bruce Bartel will be the board member on the NBAM steering committee. Still expect to get Petaluma Salvation Army online and a demo AREDN Mesh station set up at the clubhouse.

Old Business

1.Update Clubhouse painting – See Facilities Report above.

2. Test Equipment follow up- Steve Toquinto- requested affirmation of club purchase approval of the Spectrum Analyzer and the HP 8920 RF Communications Test Set from Rich Slusher for \$1,500 as approved at the October 12th, 2023, board meeting. Rob Rolands- The 8920 is not appropriate for the clubs' needs and should not be purchased in his opinion. Rob would help Rich sell it on eBay and he should be able to get \$500 for the 8920. The Spectrum Analyzer is worth about \$1,000, is easy to use for club members for testing HTs for correct frequency and harmonics and should be purchased. Stan Whitherspoon inquired if we should sell the club's present Spectrum Analyzer? Rob replied yes. This decision will be discussed further at a future board meeting. Steve will offer Rich Slusher \$1,000 for spectrum analyzer and arrange payment with our treasurer if the offer is accepted.

3. 12-16-23 Luncheon update/ Funding for door prizes and "Bling"- Curtis Ardourel- 33 people are signed up. Party supplies have been purchased, but we

still need sodas, water, cups, and tablecloths, as well as door prizes. Time is short for getting the door prizes. In past years, \$650 was allocated and prizes were picked up at HRO Oakland, but they are now located in Sacramento. The survey that was conducted to have a Holiday Party reflected broad interest in an assortment of door prizes. Issues are:

A: How much do we want to spend, and B: What do we get? MSC to allocate \$600 for door prizes. Discussion followed about what prizes we should provide, including gift cards, and where to obtain them. Pam Whitherspoon volunteered to go to Sacramento HRO to pick up prizes if someone pre-ordered them. Curtis agreed to select and order the prizes. Ken Brownfield and Jeff Young announced that NBAM has donated a portable “Mini-Mini” MESH kit, which includes transceivers, cables, power supply, laptop, and case. Jeff Young moved a total of 15 gifts for a total of \$600 and reimburse Pam \$40 gas. Seconded and carried by show of hands. Bruce Bartel expressed the wish that for next year additional expenses be taken into consideration when establishing the per-person price.

New Business

1. Smoke/CO detectors for Apartment- Bruce Bartel – We recently received an email solicitation from a fire alarm company. While that was determined to be beyond our requirements, it did raise the issue of what is needed for the clubhouse. We have 4 fire extinguishers installed in the lower level of the clubhouse building, (Skip Fedanzo reported that they have just been inspected and certified for another year), but do not have current information regarding what fire extinguishers and/or Smoke & Carbon Monoxide detectors are presently installed upstairs in the rental apartment, as well as what the requirements are for that space. Following discussion, MSC for \$350.00 to determine what is required and purchase detectors and fire extinguishers for the upstairs apartment. Bruce and Skip will do the research and will come back to the board if additional funds are required.

2. Change bylaws making Board meeting the Thursday after the Membership meeting. Bruce Bartel proposed a change to our by-laws that Board Meetings be changed from the second Thursday of each month to the Thursday immediately following the General Meeting. Curtis – we may not be able to make this decision

at a board level. There is also a question about the cycles of election for board members. These items are to be tabled until after the new 2024 board is installed.

3. Public Service Committee Update/Changes – Curtis Ardourel Public Service has long been a key component of our club. This requires a team to lead the Public Service effort, and we have long had a very able team. Michael Fischer has recently stepped back from the Public Service committee and Rob Rolands as well as Pam and Stan Whitherspoon will be backing away from it. Michael and Rob have offered to serve in the background to help the new team get their footing, but not to organize and manage events. Michael and Rob have also prepared a document to describe what the Public Service team does and what the expectations of the team are. (See attachment: The MARS Public Service team: Roles, Responsibilities and Duties, December 2023) Discussion of the document is intended for the 2024 board but they wanted to get it out in front of everyone so that by the time board next meets, we can discuss any changes or edits to that document. And then based on that, try to identify, and recruit some people to take over those positions. Rob – I think Michael and I have always felt empowered by this board to operate autonomously so we do not get every decision we make to be second guessed by the board. That has always been my assumption, I hope it will continue to be the assumption. But if neither Michael nor I as emeritus, or Pam & Stan are going to be around, we need new blood. I think it is time to bring in some new blood, perhaps from people who have done some public service events and might want to get more involved. We have 4 months until the kickoff meeting in April. Michael and I will still be around. We would like the board to empower a new Public Service Subcommittee and have that new Public Service Subcommittee take over the program that we gave put together for 2024 without any assumptions about where the kickoff meeting is going to be or any of the other minutiae of running public service. Bruce Bartel thanked Michael and Rob for the excellent blueprint to go forward with the Public Service program. Brief discussion concerning the role of the Comm Van with the Public Service Subcommittee followed. These Public Service Committee discussions and decisions will be addressed by the 2024 board. Jeff Young requested that the existing Public Service Committee send out an email to participants of 2023 Public Service events soliciting any who may be interested in participating as members of the Subcommittee in the next year.

4. Election of Officers for the Board elect - Removed prior to adoption of this Agenda. (See Adopt Agenda, above.)

5. VOAD donation Skip Fedanzo proposed that MARS make a \$25 donation to VOAD's fundraising request. Bruce Bartel Moved that we donate \$25 to VOAD. Motion seconded and carried by show of hands.

Good of the Order

Executive Session: Not Required

Adjourn: MSC, Adjourned @ 2116

Next Membership meeting on Jan 5, 2024
Next Board meeting on Jan 11, 2024

Attachment: The MARS Public Service team: Roles, Responsibilities and Duties, December 2023

The MARS Public Service team: Roles, Responsibilities and Duties December 2023

I. Overview

Fielding a public service program that supports a dozen events each year and which involves the participation of 50+ radio operators is the principal element of the Marin Amateur Radio Society's activities. MARS' excellent reputation for high-quality communications and emergency support to events is well-known. That reputation is demonstrated by the active participation of operators from around the Bay Area. Maintaining that reputation is high on the Board of Director's list of responsibilities. The MARS Board achieves that duty by appointing skilled volunteers to manage the program, by assuring them of the support required and by providing only that limited oversight to assure themselves that the program is being managed well. The purpose of this paper is to set out the duties of the Public Service team so that the Board—and the team—understand the scope and nature of the volunteer activities necessary to continue to maintain the standards established over the past several decades. The Board should expect a confidence-inspiring report on the program at every monthly meeting.

II. The Schedule

- Begin working on the schedule in November of the preceding year
- Meet with legacy event organizers early in their own schedule-making to minimize calendar-conflicts with Marin as well as Sonoma and San Francisco events.
- Be open to—and reach out to—other organizations that might benefit by our support.
- Take the schedule to the Board for approval in February or March.
- At this meeting, the Board should review, modify if necessary and approve The Documents (see below).
- Keep Marin County Fire Dept informed of the overall schedule early and as the season progresses; Battalion Chief Brett McTigue is the contact, though he is due for retirement in the near future.

III. The Budget

- Brought to the Board in February or March as a separate item from the schedule of proposed events. There are three separate components to the public service budget:
- The kickoff event: awards, food, door prizes, giveaways related to operating in an event.
- Expenses for equipment to be purchased by the committee: caps, vests, gold stars, banners, radios, antennas, portable repeaters, etc.
- Comm truck: This separate budget item should be presented in coordination with the separate Comm Truck committee. While the principal use of the comm truck is for supporting public service events, the Board may well have other projects and programs for the truck with equipment and maintenance expenses beyond those needed for the public service program.

IV. The Kickoff event

- This annual event, held at least several weeks prior to the first event, serves four purposes: **1)** to recognize, motivate and reward those who volunteered the previous season; **2)** to make explicit MARS' expectations (the position description and code of conduct); **3)** to recruit volunteers for all the events in the season and **4)** to provide training for the upcoming season.
- Where will it be held? Clubhouse? Stafford Lake? Marin Rod & Gun Club? Responsible for making arrangements wherever; date and location are items that might require approval by the Board.
- Speakers from two or three of the organizations to be supported (this helps to strengthen the recognition that we are part of their event team).
- Awards (gold stars).
- Door prizes.
- Handouts to all of items that will be useful in the field, e.g. clipboards as well as the caps and vests.
- Training—especially the position description and code of conduct but also prowords, emergency protocol; this part should not be pro-forma. Add in the kind of role-playing that Cooley has given the past two years.

V. The people

- Actively recruit and train new operators; use the Critical Mass mailing list and other tactics in this element of the program.

- Actively recruit experienced volunteers for each event, starting (but not ending) at the kickoff.
- Learn which operators are best with which roles.
- Learn which operators can be counted on—and not.
- Be cognizant of potential (or actual) personality conflicts as teams are assembled.
- Constant attention to recognition, praise, thanks, motivation in a variety of ways before, during and after every event.
- Be especially careful in assembling the net control teams—their comportment and competence will be the principal way that the event organizers weigh our performance. Weave less-experienced operators into NC teams as much as possible, but always carefully and mindfully. Assure that every member of the team knows “The Documents” (see below) by heart.
- A member of the Public Service team should be on every Marin net before and during the season—the Sunday morning net and the several Tuesday evening nets.

VI. The client organizations

- Meet with them in their offices if appropriate at the beginning of the season and again in the weeks before the event. Know the names of staff or volunteers on their side and ensure that they know you.
- Know their organization’s mission in detail. Be familiar with their website; in conversation with them, make them aware of your firm grasp of what they are all about—build a close rapport with them.
- Invite several of their spokespersons to the kickoff.
- Be at the start-finish several hours before the start time to help them set up. Help provide parking assistance, pop-up tent erection, unload the trucks...whatever’s helpful and appropriate. Again, this is about instilling confidence, and team building with the organizers—separate from the team building with our own operators.

VII. The events

- Get course maps to post on our website.
- Prepare in advance for the Thursday-before Zoom pre-briefing so that it is succinct, well-organized, gives the volunteers all the information they need and leaves them with confidence that all is well in hand.

- Fashion your draft frequency plan and duty roster well in advance and be prepared to modify it several times up to the night before the event.
- Check with the volunteer list—in the weeks and months since they signed up, their lives may well have changed.
- Request that MARS be named on their event insurance; get a copy of the insurance coverage form and give to the MARS secretary for filing. If we will be using another club's repeaters, get the same named coverage for them.
- Provide the MARS logo to the event organizer with a request that we be recognized on their website, banners, tee-shirts, etc.
- If they give recognition for in-kind contributions, ask that our name be on that list.
- Make sure the first shift at net control is there a full hour or more before start time to set up and be on the air.
- In addition to whatever reporting the event organizers wish, all operators should keep a record of the time they arrived on station; the time they were set up and ready to transmit; the time the rest stop volunteers arrived and were set up, the time the first participant arrived, the time the last participant arrived (and left) the time the rest stop volunteers departed and the time the operators closed down their station. They should also be encouraged to take photographs of their setup. Any unusual incidents should also be reported.

VIII. The Comm Truck

- The Comm truck committee will be responsible for routine maintenance, tires, tower lube, etc. But the public service team must do a final check for each event.
- In the week before an event, wash the truck.
- Fill up the fuel tank.
- Check that the radios are programmed and working.
- Make sure that the items you will need at net control are aboard: white board, popup tent, large-screen monitor, tables, chairs, paper, pencils, forms, water...
- Who will be driving the comm truck to the event? Who will return it? Who will put it away with the trash emptied, gear stowed? (Drivers must be listed on the Club's insurance!).

IX. The Radios

- Test, test, test the coverage of various repeaters as you drive or hike the course prior to making your frequency plan.

- Use as few repeaters as possible.
- If Sonoma County repeaters are required, get permission well in advance, get their named-insurance certificates.
- Assume that the comm truck's radios will fail or that it will get a flat tire on the way to the event. Make sure the first shift at net control has tables and chairs and a full radio and antenna setup to get on the air without delay.
- Do you plan to use APRS tracking for sweeps and/or SAGs? If so, make sure the equipment is available and the repeaters' coverage is sufficient.
- Similarly, if you propose to use DMR radio for any part of the comms plan, check equipment and repeater coverage.

X. The Website

- Be facile with Google docs to use for the volunteer list, the duty roster and maps to the rest stops.
- Working with the Board-designated webmaster, make sure the public service section is easy to use and inviting (it needs a major overhaul).
- Be a regular (weekly) visitor to the website to make sure information is up to date and accurate.
- Post photos and maps to assist operators to get to their locations.
- Make sure The Documents (see below) are prominently posted on the website and request that every operator check them prior to each event.

XI. The Documents

- The Board should review the following documents at the beginning of each season and make any appropriate changes. The Board should request the public service team to create a special program to assure that all operators are familiar with their provisions and agree to follow them.
- Position description.
- Code of conduct.
- Accident and emergency protocols (Public service team should ask the Marin County Fire Dept to review this each year).
- List of prowords.

XII. After-event duties

- Send an email to all operators with repeated thanks and atta-boys/gals. Describe what went well and what we will work on to make better in future. It's

impossible to be too corny in expressing thanks and appreciation—that’s an essential ingredient in motivating volunteers. Call out several operators who did an especially good job.

- Repeat that “thanks and appreciation” on all Sunday and Tuesday nets following an event.
- Collate/assemble the reports from the operators (see “The Event” above)
- Post photos on MARS website.
- Meet with the organizers for an after-action conversation. Give them the results of the operators’ reports on the timing of each rest stop. Discuss any changes they might have in mind for next year. Give them attaboys for a job well done.
- Fill out the ARRL report for each event and send it in to Bill Hillendahl.

XIII. Staffing

Clearly, these duties (yes, 65 bullet-points) are beyond the abilities or time one volunteer leader can devote to MARS principal activity. A team of two and at the most three can do so—and has done so for the past 15+ years. The team needs to have a demonstrated combination of technical skills, management/organizational skills and people/motivational skills. It’s the Board’s duty to recruit, appoint and support (but not second-guess) a team with a combination of all three.

XIV. The role of the Board

Once the committee is appointed, the Board should avoid the error of second-guessing decisions of the Committee. Members of the Board are not on the committee and should not act as though they are. When the Board approves the schedule and budget, it should specifically identify items on which they wish to be consulted—for example, whether to add a new event, say, or the location of the kickoff meeting. The board should expect a progress report at each meeting but should not take that as an opportunity to counter or modify decisions made by the Committee. (Even if the Board does not agree with those decisions!) The Board, of course, may make suggestions along the way; but its role is strictly limited to selecting the members of the committee, approving their roles and responsibilities, approving the schedule and budget. Period.

Prepared by Rob Rowlands NZ6J and Michael Fischer K6MLF

December 4, 2023

Reformatted to Google Docs by Rob Rowlands

December 7, 2023

Marin Amateur Radio Club

Balance Sheet Comparison

As of December 31, 2023

TOTAL

	AS OF DEC 31, 2023	AS OF DEC 31, 2022 (PY)
ASSETS		
Current Assets		
Bank Accounts		
B of A Building account - 8795	5,385.61	5,899.44
B of A General account - 4328	69,780.12	9,199.99
CD	0.00	25,000.00
Money Market	0.00	5,000.00
VE Session Cash	-129.00	
VE Session Cash Received	-45.00	
Total Bank Accounts	\$74,991.73	\$45,099.43
Other Current Assets		
Uncategorized Asset	-95.00	-95.00
Total Other Current Assets	\$ -95.00	\$ -95.00
Total Current Assets	\$74,896.73	\$45,004.43
Fixed Assets		
club house- 27 Shell Rd. MV	58,983.00	58,983.00
Total Fixed Assets	\$58,983.00	\$58,983.00
TOTAL ASSETS	\$133,879.73	\$103,987.43
LIABILITIES AND EQUITY		
Liabilities		
Total Liabilities		
Equity		
Opening Balance Net Assets	124,400.00	124,400.00

Retained Earnings	-20,412.57	-16,461.90
Net Income	29,892.30	-3,950.67
Total Equity	\$133,879.73	\$103,987.43
TOTAL LIABILITIES AND EQUITY	\$133,879.73	\$103,987.43

Marin Amateur Radio Club

Profit and Loss

January - December 2023

TOTAL

	JAN - DEC 2023	JAN - DEC 2022 (PY YTD)
Income		
Auction Income		60.00
Christmas Party Income	810.00	
Donations	3,949.17	142.99
Dues	9,728.40	6,305.00
Field day refund		1,375.00
Income from club activities		90.00
Interest Income	792.77	
Public Service Refund	450.00	450.00
Rent	28,600.00	31,700.00
Sales of Product Income		24.69
Unapplied Cash Payment Income		250.00
Total Income	\$44,330.34	\$40,397.68
GROSS PROFIT	\$44,330.34	\$40,397.68
Expenses		
Accounting	1,335.00	165.00

Awards	299.99	
Car & Truck	2,327.80	827.80
Car & Truck Gas	258.02	177.39
Total Car & Truck	2,585.82	1,005.19
Christmas Party	40.00	
Contractors	13,000.00	
Equipment < \$2,500	1,878.64	
Field day	1,370.26	2,184.67
Garbage	584.04	526.24
Insurance	5,537.00	7,191.75
Comm Van Insurance	2,859.50	194.25
Total Insurance	8,396.50	7,386.00
Legal & Professional Services		575.00
Meals		2,208.00
Other Business Expenses	334.93	216.00
Picnic	1,757.51	2,290.60
Public Service Expense	1,379.96	3,342.98
Reimbursable Expenses	2,696.73	2,272.86
Repair & Maintenance	515.00	2,278.72
Repairs & Maintenance		2,880.00
Repeater	1,567.50	
Taxes & Licenses	4,074.67	11,911.04
Telephone		94.47
Uncategorized Expense	25.00	275.00
Utilities	4,589.67	3,683.88

Marin Amateur Radio Club

Profit and Loss January - December 2023

	TOTAL	
	JAN - DEC 2023	JAN - DEC 2022 (PY YTD)
VE Session	174.00	275.00
Water	1,046.63	777.70
Total Expenses	\$47,651.85	\$44,348.35
NET OPERATING INCOME	\$ -3,321.51	\$ -3,950.67
Other Income		
MESH Grant Income	33,500.00	
Total Other Income	\$33,500.00	\$0.00
Other Expenses		
MESH Grant Disbursement	286.19	
Total Other Expenses	\$286.19	\$0.00
NET OTHER INCOME	\$33,213.81	\$0.00
NET INCOME	\$29,892.30	\$ -3,950.67

LIFE IS SIMPLE



MARS Club News

Annual Club Holiday Party

2023 Seasonal Party Report

This was written by **Curtiss Kim**, who has contributed greatly to the QSA-5, and made the editor's life a lot easier. Thanks Curtiss!

It has been three years since MARS held an in-person year end seasonal party, but the tradition has resumed. Thirty members and guests flocked to the Mill Valley club house on December 16th for a traditional meal of turkey, ham and all the trimmings.



Everyone enjoyed associating their faces with the call signs and swapping amateur radio stories. The long-held tradition was cancelled during the Covid stretch but goes back years when the club would hold the get-together not only partying but a December board meeting, election results and awards. In recent years the potluck gave way to restaurant gatherings then returned to catered events at the club house. "Why not take advantage of our facility?" according to MARS President, Curtis Ardourel, WA6UDS. Ardourel pointed out MARS is one of the few amateur radio organizations in the area that has a clubhouse that serves as a meeting place, radio shack, and repair shop.



The building used to be part of the Alto Volunteer Fire Department. It was donated to the club in 1997. One of the highlights of the luncheon was the raffle. Some of the items up for grabs included an ICOM VHF handie talkie, several mobile antennas, tool kits and a complete setup for a portable MESH (ham frequency internet) station. The first ticket drawn was held by Steve Toquinto, KB6HOH who quickly chose the ICOM portable radio. The mobile antennas and tool kits were also quickly taken. The dinner was just one of several social events MARS holds during the year. Others include Field Day and the club picnic. There was a question of whether or not to hold the in-person gathering this year. Ardourel said he approached the event first with an email survey to gauge a response. The feedback proved positive for the luncheon. Plans are already underway for next year's Field Day and summer picnic. As noted in the club minutes the current membership stands at 163 operators. That is 104 percent of last year's membership. Hopefully the turnout for these social gatherings will grow in the coming year.



MARS Public Service sub-committee is seeking new blood for 2024!

From **Rob Rowlands** NZ6J: Our public service program in Marin is one of the Club's major outreach activities. Our client organizations need us more here than in other geographies, thanks to our challenging terrain and excellent repeater infrastructure. The clients include the Dipsea foot race, the Marin Century bike event, the Miwok 100 Ultramarathon and others. Our program for next year can be seen at <https://docs.google.com/document/d/1nXczB2l8pUczjGduGx54Ob-m5wLAdFu0Lmnje8K3UAQ/edit?usp=sharing>. This Google doc is still preliminary, pending approval by our Board, and once done operators can use it sign up for specific events.

The duties of event organizers are outlined in this excellent document by emeritus Convenor, Michael K6MLF! <https://docs.google.com/document/d/1->

[VeFBtMrrP2Z3xrOHYQg372t7c0hrROhxruM0qn8JN0/edit?usp=sharing](https://www.facebook.com/MRRP2Z3xrOHYQg372t7c0hrROhxruM0qn8JN0/edit?usp=sharing). Over the 20 years I have been involved, Michael and others including Randy KA6BQF, Larry KK6QPE, and more recently Pam N6PDW and Stan AI6NF, have refined our playbook to ensure the best service to our clients and the best experiences for the operators. It's a very rewarding way to deal with our community and also to get out on the trail! There's a lifetime supply of T-shirts in your future!

If you would like to join our subcommittee, please either contact Curtis WA6UDS or myself.

73,

Rob Rowlands NZ6J soon to be emeritus hopefully!

Here is the relative documentation that will give interested parties an idea of what they are committing to, should they volunteer:

**The MARS Public Service team:
Roles, Responsibilities and Duties
December 2023**

I. Overview

Fielding a public service program that supports a dozen events each year and which involves the participation of 50+ radio operators is the principal element of the Marin Amateur Radio Society's activities. MARS' excellent reputation for high-quality communications and emergency support to events is well-known. That reputation is demonstrated by the active participation of operators from around the Bay Area. Maintaining that reputation is high on the Board of Director's list of responsibilities.

The MARS Board achieves that duty by appointing skilled volunteers to manage the program, by assuring them of the support required and by

providing only that limited oversight to assure themselves that the program is being managed well.

The purpose of this paper is to set out the duties of the Public Service team so that the Board—and the team—understand the scope and nature of the volunteer activities necessary to continue to maintain the standards established over the past several decades. The Board should expect a confidence-inspiring report on the program at every monthly meeting.

II. The Schedule

- Begin working on the schedule in November of the preceding year.
- Meet with legacy event organizers early in their own schedule-making to minimize calendar-conflicts with Marin as well as Sonoma and San Francisco events.
- Be open to—and reach out to—other organizations that might benefit by our support.
- Take the schedule to the Board for approval in February or March.
- At this meeting, the Board should review, modify if necessary and approve The Documents (see below).
- Keep Marin County Fire Dept informed of the overall schedule early and as the season progresses; Battalion Chief Brett McTigue is the contact, though he is due for retirement in the near future.

III. The Budget

- Brought to the Board in February or March as a separate item from the schedule of proposed events. There are three separate components to the public service budget:
- The kickoff event: awards, food, door prizes, giveaways related to operating in an event.
- Expenses for equipment to be purchased by the committee: caps, vests, gold stars, banners, radios, antennas, portable repeaters, etc.
- Comm truck: This separate budget item should be presented in coordination with the separate Comm Truck committee. While the principal use of the comm truck is for supporting public service events, the Board may well have other projects and programs for the truck

with equipment and maintenance expenses beyond those needed for the public service program.

IV. The Kickoff event

- This annual event, held at least several weeks prior to the first event, serves four purposes: 1) to recognize, motivate and reward those who volunteered the previous season; 2) to make explicit MARS' expectations (the position description and code of conduct); 3) to recruit volunteers for all of the events in the season and 4) to provide training for the upcoming season.
- Where will it be held? Clubhouse? Stafford Lake? Marin Rod & Gun Club? Responsible for making arrangements wherever; date and location are items that might require approval by the Board.
- Speakers from two or three of the organizations to be supported (this helps to strengthen the recognition that we are part of their event team).
- Awards (gold stars).
- Door prizes.
- Handouts to all of items that will be useful in the field, eg clipboards as well as the caps and vests.
- Training—especially the position description and code of conduct but also prowords, emergency protocol; this part should not be pro-forma. Add in the kind of role-playing that Cooley has given the past two years.

V. The people

- Actively recruit and train new operators; use the Critical Mass mailing list and other tactics in this element of the program.
- Actively recruit experienced volunteers for each event, starting (but not ending) at the kickoff
- Learn which operators are best with which roles.
- Learn which operators can be counted on—and not.
- Be cognizant of potential (or actual) personality conflicts as teams are assembled.

- Constant attention to recognition, praise, thanks, motivation in a variety of ways before, during and after every event.
- Be especially careful in assembling the net control teams—their comportment and competence will be the principal way that the event organizers weigh our performance. Weave less-experienced operators into NC teams as possible, but always carefully and mindfully. Assure that every member of the team knows “The Documents” (see below) by heart.
- A member of the Public Service team should be on every Marin net before and during the season—the Sunday morning net and the several Tuesday evening nets.

VI. The client organizations

- Meet with them in their offices if appropriate at the beginning of the season and again in the weeks before the event. Know the names of staff or volunteers on their side and ensure that they know you.
- Know their organization’s mission in detail. Be familiar with their website; in conversation with them, make them aware of your firm grasp of what they are all about—build a close rapport with them.
- Invite several of their spokespersons to the kickoff.
- Be at the start-finish several hours before the start time to help them set up. Help provide parking assistance, pop-up tent erection, unload the trucks...whatever’s helpful and appropriate. Again, this is about instilling confidence, and team building with the organizers—separate from the team-building with our own operators.

VII. The events

- Get course maps to post on our website.
- Prepare in advance for the Thursday-before Zoom pre-briefing so that it is succinct, well-organized, gives the volunteers all the information they need and leaves them with confidence that all is well in hand.
- Fashion your draft frequency plan and duty roster well in advance and be prepared to modify it several times up to the night before the event.

- Check with the volunteer list—in the weeks and months since they signed up, their lives may well have changed.
- Request that MARS be named on their event insurance; get a copy of the insurance coverage form and give it to the MARS secretary for filing. If we will be using another club's repeaters, get the same named coverage for them.
- Provide the MARS logo to the event organizer with a request that we be recognized on their website, banners, tee-shirts, etc.
- If they give recognition for in-kind contributions, ask that our name be on that list.
- Make sure the first shift at net control is there a full hour or more before start time to set up and be on the air.
- In addition to whatever reporting the event organizers wish, all operators should keep a record of the time they arrived on station; the time they were set up and ready to transmit; the time the rest stop volunteers arrived and were set up, the time the first participant arrived, the time the last participant arrived (and left) the time the rest stop volunteers departed and the time the operators closed down their station. They should also be encouraged to take photographs of their setup. Any unusual incidents should also be reported.

VIII. The Comm Truck

- The Comm truck committee will be responsible for routine maintenance, tires, tower lube, etc. But the public service team must do a final check for each event.
- In the week before an event, wash the truck.
- Fill up the fuel tank.
- Check that the radios are programmed and working.
- Make sure that the items you will need at net control are aboard: white board, popup tent, large-screen monitor, tables, chairs, paper, pencils, forms, water...
- Who will be driving the comm truck to the event? Who will return it? Who will put it away with the trash emptied, gear stowed? (Drivers must be listed on the Club's insurance!)

IX. The Radios

- Test, test, test the coverage of various repeaters as you drive or hike the course prior to making your frequency plan.
- Use as few repeaters as possible.
- If Sonoma County repeaters are required, get permission well in advance, get their named insurance certificates.
- Assume that the comm truck's radios will fail or that it will get a flat tire on the way to the event. Make sure the first shift at net control has tables and chairs and a full radio and antenna setup to get on the air without delay.
- Do you plan to use APRS tracking for sweeps and/or SAGs? If so, make sure the equipment is available and the repeaters' coverage is sufficient.
- Similarly, if you propose to use DMR radio for any part of the comms plan, check equipment and repeater coverage.

X. The website

- Be facile with Google docs to use for the volunteer list, the duty roster and maps to the rest stops.
- Working with the Board-designated webmaster, make sure the public service section is easy to use and inviting (it needs a major overhaul.)
- Be a regular (weekly) visitor to the website to make sure information is up to date and accurate.
- Post photos and maps to assist operators to get to their locations.
- Make sure The Documents (see below) are prominently posted on the website and request that every operator check them prior to each event.

XI. The Documents

- The Board should review the following documents at the beginning of each season and make any appropriate changes. The Board should request the public service team to create a special program to assure that all operators are familiar with their provisions and agree to follow them.
- Position description.

- Code of conduct.
- Accident and emergency protocols (Public service team should ask the Marin County Fire Dept to review this each year).
- List of prowords.

XII. After-event duties

- Send an email to all operators with repeated thanks and attaboys/gals. Describe what went well and what we will work on to make better in future. It's impossible to be too corny in expressing thanks and appreciation—that's an essential ingredient in motivating volunteers. Call out several operators who did an especially good job.
- Repeat that thanks and appreciation on all Sunday and Tuesday nets following an event.
- Collate/assemble the reports from the operators (see "The Event" above).
- Post photos on MARS website.
- Meet with the organizers for an after-action conversation. Give them the results of the operators' reports on the timing of each rest stop. Discuss any changes they might have in mind for next year. Give them attaboys for a job well done.
- Fill out the ARRL report for each event and send it in to Bill Hillendahl.

XIII. Staffing

Clearly, these duties (yes, 65 bullet-points) are beyond the abilities or time one volunteer leader can devote to MARS principal activity. A team of two and at the most three can do so—and has done so for the past 15+ years. The team needs to have a demonstrated combination of **technical** skills, **management**/organizational skills and **people**/motivational skills. It's the Board's duty to recruit, appoint and support (but not second-guess) a team with a combination of all three.

XIV. The role of the Board

Once the committee is appointed, the Board should avoid the error of second-guessing decisions of the Committee. Members of the Board are not on the committee and should not act as though they are. When the Board

approves the schedule and budget, it should specifically identify items on which they wish to be consulted—for example, whether to add a new event, say, or the location of the kickoff meeting. The board should expect a progress report at each meeting but should not take that as an opportunity to counter or modify decisions made by the Committee. (Even if the Board does not agree with those decisions!) The Board, of course, may make suggestions along the way; but its role is strictly limited to selecting the members of the committee, approving their roles and responsibilities, approving the schedule and budget. Period.

Prepared by Rob Rowlands NZ6J and Michael Fischer K6MLF

December 4, 2023

Reformatted to Google Docs by Rob Rowlands

December 7, 2023

2024 MARS Public Service dates

1. Kaiser 5k and half marathon: SFARC Sunday, February 4, 2024

DMR Radio required DMR Repeater (W6PW) Digital channel

RX:444.225,TX:449.225 Color Code (CC): 1 Timeslot (TS): 2 Talkgroup(TG) 9

2. Public service briefing and lunch: Saturday April 6, 2024,1100 to 1400 hrs, Location: to be decided

3. [Ridge to Bridge](#): Saturday, April 14 Requesting 16 MARS volunteers:

4. MCBC Jane Fondo Saturday April 27 2024 Womens mountain bike event
18 at aid stations, 3 accompany SAGs, 1 moto, 1 biker
Don Magdanz, Event Organizer at Net Control
5. **Miwok 100K**, Saturday, May 4, 2024
18 at aid stations, 3 hikers
6. **Dipsea**: 113th Annual Dipsea will be run on Sunday, June 9th, 2024 7am-2pm 20 needed
(Stinson/County CommTruck)
Don Magdanz, Finish Truck and Information Tent
7. **Field Day**: June 22/23, 2024 Stafford Lake Park 1800z (11am) to 2100z (2pm Sunday) <http://www.arri.org/field-day-rules>
8. **MCBC Dirt Fondo**: Saturday, July 20, 2024, 6am - 3pm 18 needed (/Fort Cronkhite/CommTruck)
Don Magdanz, Event Organizer at Net Control
9. San Francisco Marathon **Saturday/Sunday July 27-28, 2024**
10. **Marin Century**: Saturday August 3, 2024, 5:00am-8pm 34 needed (Stafford Lake/CommTruck) Don Magdanz, Event Organizer at Net Control
11. **Double Dipsea: Saturday August 24, 2024**, (Comms Organizer TBD)
6:30am-1:30pm 18 needed (Stinson/CommTruck)

12. [MCBC Adventure Revival](#). Saturday, September 21, 2024 7:30am-3pm. 15 needed. (San Geronimo former golf course/CommTruck?) Don Magdanz, Event Organizer at Net Control

13. [ZBC Dipsea Hike](#): Saturday, September 21, 2014 (Comms Organizer TBD) 7am-2pm, 8 needed (Old Mill)

14. Breast Cancer Prevention Partners Peak Hike: Moved to Pacifica in 2023, no MARS radio support required.

15. MDARC Pacificon ham convention San Ramon Marriott October ? 2024

16. Dolphin Club Escape from Alcatraz Sunday, October 5, 2024 10am-6pm. 8 needed (Old Mill) Could certainly use 20, if more folks are interested, please!

From the editor of the QSA-5: For those interested in this volunteer position, here are a sample of the type of event the club and volunteer position covers from May of 2023. This was also put together and provided by Rob Rolands:

Proposed RACES/ACS Field Event Saturday May 6, 2023

Further to discussion at the RACES leadership meeting 1/14/2023, we could combine the MARS Public Service Event for the Miwok 100 with a parallel RACES exercise to ascertain baseline Marin repeater's performance.

As there is little Miwok 100 activity in the morning, I suggest from 10am to noon we run an overlapping repeater check. Operators additional to those assigned to the rest stops would need to deploy to non-Miwok 100 sites, as shown in table 2. Operators at Miwok 100 sites would of course defer to any Miwok 100 traffic!

Here are the 2022 Assignments:

https://docs.google.com/document/d/1B3EbbmBZ3L0HZGHGqco_7vG1yMngiyST0G8OWITQj2w/edit?usp=sharing

Table 1: These are the Miwok 100 sites:

Site	Primary repeater	Other repeaters
Stinson Beach Net control at Fire Station	147.330 MHz PL 192.8 Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
BOFAX aka Bolinas Ridge (Trail & Bolinas Fairfax Road)	147.330 MHz PL 192.8 Tam West VHF	English Hill, Sonoma Mtn, Diablo, Simulcast, all UHF
Randall Trail (Hwy 1 and Randall Trailhead)	147.330 MHz PL 192.8 Tam West VHF	Simulcast, Barnabe UHF, English Hill
Muir Beach (Muir Beach Parking Lot)	147.330 MHz PL 192.8 Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
Tennessee Valley (End of Tennessee Valley Road)	147.330 MHz PL 192.8 Tam West VHF	Simulcast, Station 9 UHF, Tam UHF, K6ER UHF,
Gerbode Stables (Bunker Road)	147.330 MHz PL 192.8 Tam West VHF	Simulcast (all 4 inputs), Tam UHF, K6ER UHF
Cardiac Hill	147.330 MHz PL 192.8 Tam West VHF	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF. K6ER UHF, Station 9 UHF

Table 2: Other sites to check. Require deployment of mast antenna and 50W mobile radio if none already exist. RCV has already tested many of these paths

EOC at Los Gamos, preferably from radio room	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, English Hill, Sonoma Mtn
Coast guard station at Fort Baker	Simulcast (all 4 inputs), Tam UHF, Big Rock UHF, Station 9 UHF, K6ER UHF, W6PW Sutro
Nicasio School	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, English Hill, Sonoma Mtn
Stinson Beach School	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF, W6ER, W6PW Sutro
San Geronimo Old Golf Course	Simulcast (all 4 inputs), Tam UHF, Barnabe UHF, Big Rock UHF
Walker Creek	
Valley Forde	
Tomales	
Fallon-Two Rock	

Please add comments or populate table 2!

Plan of Action

During the RACES activity each of the Table 2 stations should endeavor to get signal reports from each of the Table 1 Miwok stations as Event traffic allows. As well as testing Tam West, where possible as many of the external repeaters should also be tested. A spreadsheet

Rob Rowlands NZ6J
415 849 5667

Battery Fire Warning

Thank you to Michael K6MLF for bringing this to our attention. We are leaving this in the QSA-5 for another month because of its importance: We use batteries in our handheld radios, as well as other devices we own. Lithium-ion batteries are a staple in handheld communication devices but can cause dangerous fires. Here's a link to the article Michael forwarded to us, followed by some things to consider regarding lithium-ion batteries and their potential for causing fires:

https://gcaptain.com/thermal-runaway-of-lithium-ion-battery-destroys-tankers-bridge/?subscriber=true&goal=0_f50174ef03-008d870e20-170023329&mc_cid=008d870e20

Lithium batteries can catch fire due to a phenomenon known as thermal runaway. Thermal runaway is a self-perpetuating, exothermic reaction that occurs when a battery cell overheats, leading to a further increase in temperature and the release of more heat. This cycle can escalate rapidly and result in the battery catching fire or even exploding.

Several factors can contribute to thermal runaway in lithium batteries:

1. **Internal Short Circuit:** If the separator inside the battery fails or if there's a defect in the manufacturing process, it can lead to an internal short circuit. This allows the electrodes to come into direct contact, causing rapid heat generation.
2. **Overcharging:** Charging a lithium battery beyond its specified voltage limits can lead to the breakdown of the electrolyte and the formation of internal shorts, initiating thermal runaway.
3. **External Factors:** Physical damage to the battery, such as punctures or crushing, can compromise the integrity of the cell and trigger thermal runaway. Exposure to high temperatures can also contribute to the process.
4. **Contamination:** Contaminants introduced during the manufacturing process or as a result of wear and tear can create conditions conducive to thermal runaway.
5. **Poor Design:** Inadequate design of the battery or its associated protection circuitry can increase the risk of thermal runaway. For instance, if the

battery management system (BMS) is not effective in controlling the charging and discharging processes, it can lead to unsafe conditions.

Manufacturers implement various safety features and precautions to minimize the risk of thermal runaway. This includes incorporating safety mechanisms within the battery, such as thermal protection devices, pressure relief vents, and advanced battery management systems. However, despite these precautions, mishandling, manufacturing defects, or other unforeseen circumstances can still lead to the rare but serious incidents of lithium battery fires.

RCV News

In time of disaster, amateur radio operators are often the only form of real communication when cellphones and the internet are down. Across the Country and the globe, small groups of dedicated ham operators prepare for the moment disaster strikes. Here in Marin County, we have the RCV, led by Skip Fedanzo KJ6ARL. The QSA-5 will continue to cover this crucial part of amateur radio. We highly suggest that our newer members become involved with the RCV. It's a great way to gain radio skills. Below is a report from last year's October RCV "The Great Shakeout" event:

The Great Shakeout

RCV's After Action Report for

The Great Shakeout 2023 Exercise on 10/19/2023

Overview

As public safety-first responders return to normal operations during the first 12-36 hours following a major disaster, Community Based Organizations (CBOs) must continue to provide “wraparound” services (e.g., food, water, shelter, medical and financial) to Marin’s most vulnerable populations. How well CBOs are able to meet the needs of their clients will depend on whether they can communicate effectively with other CBOs plus County resources like HHS, Public Works and the VOAD position in the EOC.

The Radio Communications Volunteers (RCV) program exists to ensure vital communications between civilian relief organizations (i.e., Marin CBOs), the VOAD and County relief efforts when normal telecommunications and Internet services are unavailable. The Great Shakeout and Golden Eagle exercises afford ample opportunity to practice how well RCV can standup operating communication systems among designated client organizations.

Goals

RCV’s primary goals for this exercise were:

1. Test RCV activation procedures and documentation.
2. Practice messaging for CBOs to/from the VOAD/EOC.
3. Practice working with CBOs to craft shorter, simpler messages.

Discussion

On October 19th, 2023, RCV successfully established effective two-way radio

communications between CBOs and the EOC in a simulated post-earthquake environment (i.e., as if all normal civilian communications services were unavailable). This was done by a cadre of 13 experienced amateur radio operators deployed to eight (8) CBOs located in north, south, central and west Marin County (see [Appendix A](#)). An additional RCV Net Control Station (NCS) was operated in the ACS-RACES radio room at the Marin County Emergency Operations Center (EOC).

RCV on-air activity occurred between approximately 1300 and 1600 hours.

RCV's major goals were achieved for procedural activities. Satisfactory headway was made on documentation as well, the latter being especially relevant since a primary goal for RCV is accurate message passing. During this exercise we introduced a new form intended to provide an initial situation summary upon arrival at CBO site. The form was arbitrarily titled *ACS-201* and a sample is provided in [Appendix B](#). It is similar to the "CAN" report familiar to firefighters.

Somewhat surprisingly, two CBOs filled in ICS-213 forms themselves and indicated they'd prefer to do that. Another CBO requested training on basic radio protocol and procedures for effective use of their GMRS handheld radios. RCV is following up on both of these CBO interests.

Feedback from participating RCV Operators highlighted the following:

1. RCV Net Control station requires a minimum of two persons: a radio operator and a scribe. Having a third person to act as a runner for direct communication with the VOAD position is highly desirable.
2. We need to continue to work with CBO staff so more of them know what RCV is and the basics of what we can do. This will enable them to work with RCV even if RCV's usual CBO contact person is not available.
3. Having the VOAD position in the EOC available to resolve questions and direct messages to CBOs is a key to optimizing use of RCV and CBO resources.
4. Recruiting additional RCV Operators remains a priority.
5. We found another location in Pt. Reyes Station that provided good signal

quality. 6. RCV Operators suggested we create a one-page handout to CBOs on arrival outlining what RCV can do and how best to work with RCV.

Conclusions

Overall, the exercise was a success. Our experiences suggest that we should hold a table-top workshop with the CBOs in early 2024 to replicate the activities of all three parties (CBOs, VOAD and RCV), with the aim of clarifying the response process. Also, results from both Golden Eagle 2023 and this exercise suggest we should hold two additional kinds of exercises in future:

1. Multi-day exercises with shift changes;
2. Concurrent on-air activities with ACS-RACES to replicate conditions where both ACS sections are active.

A final open issue is RCV's physical access to the EOC radio room after ACS-RACES stands down and/or when RCV needs to activate (e.g., a Public Safety Power Shutdown), but RACES is not activated.

APPENDIX A – RCV Operators, CBO Locations Tables & RCV Forms

Table 1: Radio Operators

Operators	Callsigns
Curtiss Kim	KM6GUY
Brian Cooley	K6EZX
Bruce Bartel	N6VLB

Jerry Foster	WA6BXV
Ed Essick	K6ELE
Ken Brownfield	AB6JR
Kevin Johnston	W6KPJ
Dan Greely	KN6PNA
Jim Saltzgaber	KM6WWY
Dirck Brinckerhoff	KM6VKQ
Andrew Musselman	KI6UOC
Ann Shores	K6SHO
Skip Fedanzo	KJ6ARL

Table 2 – CBO Radio locations

Canal Alliance	San Rafael
SF-Marin Food Bank (San Rafael)	San Rafael
Community Action Marin	San Rafael
North Marin Community Services	Novato
Homeward Bound	Novato

San Geronimo Valley Community Center	San Geronimo
Marin Community Cooperation Team	Marin City/Sausalito
West Marin Community Services	Pt. Reyes Station
EOC / NCS	San Rafael

Table 3 - ICS Forms

- ICS-205 RCV Communications Plan
- ACS-201 RCV Initial Status Report
- ICS-214 Activity Log
- ICS-309 Communications Log
- ICS-213 General Message

APPENDIX B – ACS-201 Form

RCV Initial Status Report Form ACS-201

This form provides situational awareness of the organization's operations to the EOC. This form must be completed and reported to RCV's Net Control Station by the first RCV Operator to arrive at an assigned location each day.

Complete before contacting staff or other on-site persons!

Item	Questions	Answers (print)

1	Date & Time	
2	Location/Address	
3	Tactical Callsign	
4	Conditions: What is seen including safety concerns (e.g., crowds, hazards, resources, roadways, weather); indicate if there are no changes since last report	
5	Operations/Actions: What has and is taking place (what services is the CBO providing today: feeding, loading supplies, sheltering, other)	
6	Needs: what resources are requested (includes EMS, fire, law, public works, transportation)?	
7	Your FCC Callsign	

Reported to ACS NCS by callsign: _____ Date: _____ Time: _____ hrs.

After Action Report

Marin City/Sausalito Area UHF Simplex Test on 11/06/2023

Overview:

On Monday November 6th 2023, nine RCV Operators tested various UHF simplex paths to and from two key sites in Southern Marin as well as San Rafael area including the Los Gamos EOC.

A. Marin City/Sausalito area:

1. Marin County Cooperation Team (Marinship Way) – Warren Leiden K6WRL
2. Marin City (Target Store) area – Charlie Benet AI6TT

B. San Rafael area stations were:

1. San Rafael Food Bank – Ann Shores K6SHO
2. Canal Alliance area – Dick Brinckerhoff KM6VKQ
3. Homeward Bound area – Kevin Johnston W6KPJ
4. Home Depot area – Dan Greely KN6PNA

C. Two simplex relay stations for this test:

1. Ring Mountain area – Greg King KO6BHM
2. Camino Alto – Andrew Musselman KI6UOC

D. Net Control Station:

1. 1600 Los Gamos East side parking lot near Lobby B – Skip Fedanzo KJ6ARL

As **Table 1** shows there were mixed results for most stations. **Table 2** lists the test stations locations and radio equipment deployed. When the data in **Table 1** is represented as diagrams (**Figures 1 & 2**), we see two signal circuits for

successful two-way communications between Marin City/Sausalito sites and CBO stations along the Hwy 101 corridor.

These tests do not preclude other San Rafael area CBOs from being able to serve as relays to/from Marin City / Sausalito locations. Nor do these test results guarantee equivalent results if the San Rafael locations change. However, we now have proof that simplex relays via San Rafael and on to the EOC are practical if repeaters are out.

Lessons Learned:

1. Net Control should have been consistent on using tactical callsigns.
2. Not a new finding, but results did improve due to increased antenna height and/or transmit power.
3. RCV Net Control could be located in other locations as long as traffic can be sent to the EOC or its ultimate destination.
4. Ring Mountain tests proved coverage into San Rafael with 5-watt HT, but wind noise and lack of a pole-mounted antenna diminished that station's capabilities. It should be noted that Ring Mountain locations require a significant uphill hike and there is no real shelter from the environment conducive to radio operations.

Table 1: Simplex Test Results of successful signal paths

CBO	Camino Alto	Canal	EOC	Food Bank	Home Depot	Homeward Bound	MCCT	Marin City	Ring Mt n.
Camino Alto			3	4-5	4-5	4-5	4-5	4-5	
Canal					5		4*	4*	1*
EOC	4-5			4	5	5			

Food Bank	3*		5		5	1	3-4		
Home Depot	5	5	5	5		5	5	5	4**
Homeward Bound	4-5		5	2	4-5		3-4	3-4	5*
MCCT	4-5			4-5	4-5	4-5		4-5	0-1
Marin City (Target)	5	2*			5	3-5	5		3*
Ring Mountain	3*	3*	3*	3*	3*	3*	3*	3*	

NOTES:

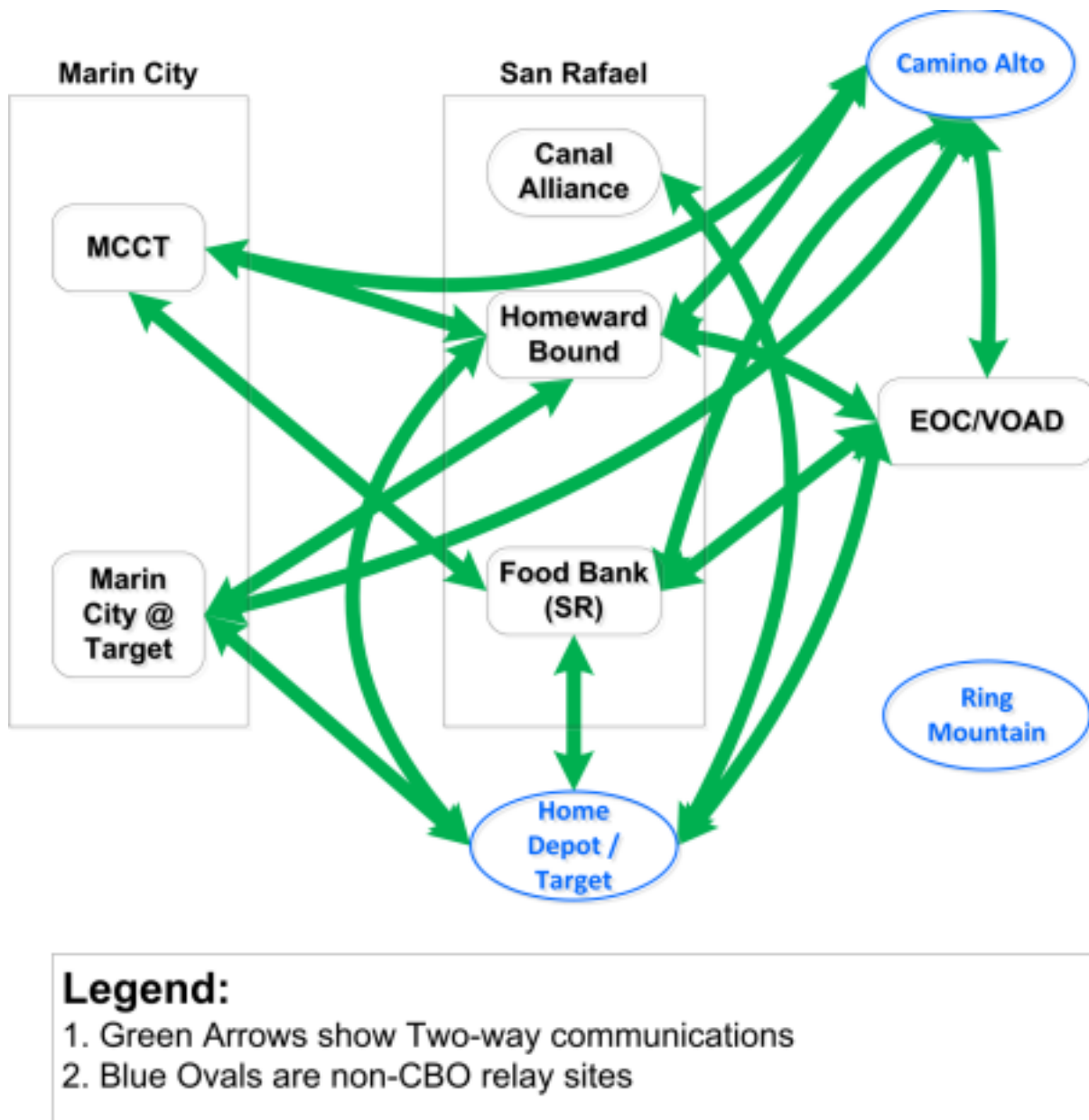
1. Empty cells indicate no signal was received.
2. Numbers marked with an asterisk "*" indicate only signal receptions are reported.
3. Number marked with two asterisks "**" indicate a single instance.

Table 2: Test Stations Locations and Radio Equipment

CBO	Station Location	Equipment
Camino Alto	Camino Alto	Yaesu FT-8900R, 25W, Tram 1185 mag mount
Canal	91 Larkspur Street, San Rafael. Transmitter issue at	Yaesu FTM-100, Dipole car roof, 8W

	Canal*	
EOC	Parking Lot East side of 1600 Los Gamos.	Kenwood TM-V71, 10W, Diamond 6db gain mag mount
Food Bank	2550 Kerner Blvd, San Rafael, N. end of lot @ Vol. Welcome Center	Kenwood TM-V71A, 45W, J pole antenna on 16' mast
Home Depot	111 Shoreline Pkwy and Target's parking lot, San Rafael	Icom ID-5100, 5/8λ truck mount, 12.5W
Homeward Bound	At end of Del Oro Lagoon (Bel Marin Keys, NE. of Hamilton).	Yaesu FT-8800, 35W, mobile antenna
MCCT	Main Plaza parking lot, on the SF Bay side.	Kenwood TM-V71A, 45W, X50 pole antenna on 16 ft mast
Marin City (Target)	Donahue going north (uphill) directly behind Target.	Kenwood V71A and a Diamond X30
Ring Mountain	Ring Mtn, South of end of Taylor Rd.; hike up hill to top.	Icom HT @ 5W

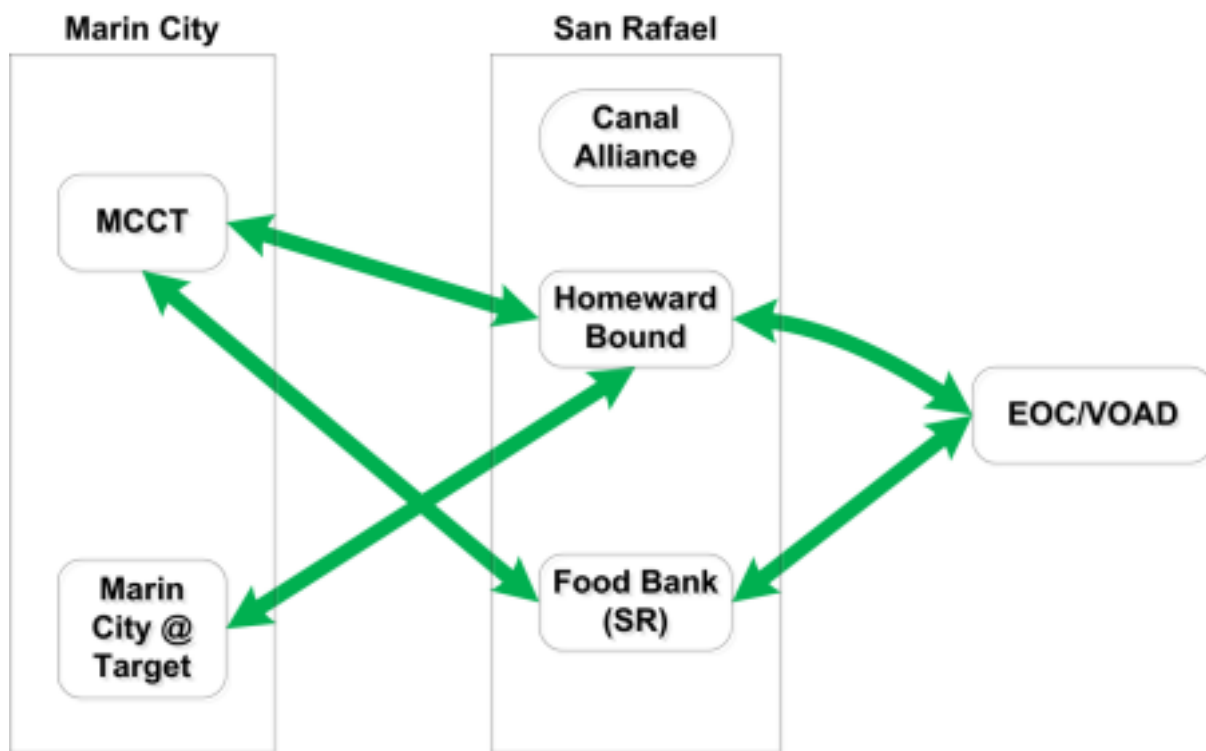
Figure 1: Pathways with Non-CBO Relay Stations



Notes:

1. Technical issues at Canal Alliance and weather at Ring Mountain precluded adequate two-way tests.
2. Ring Mountain could hear the other stations, but was not heard by most other sites at CM 3 or more.
3. Camino Alto relay station had good communications with MCCT and Marin City (@ Target) sites as well as the EOC.

Figure 2: Pathways with only CBOs as Relay Stations



Legend:

1. Green Arrows show Two-way communications
2. Heavy Green Arrows show paths from Marin City to EOC

Figure 2 shows relay paths without the external (i.e., non-CBO) relay stations. It is likely although untested whether Canal Alliance would serve as well to relay from Marin City / Sausalito area stations.

Note that technical issues at Canal Alliance precluded adequate two-way tests. We may want to re-test at that location in future.

ACS/RCV Mission Statement

Mission: During national, regional, or local emergencies provide effective backup radiocommunications in support of the EOC/VOAD and Community Based Organizations (CBOs) or other non-public safety agencies within the Marin County OA when requested by competent authority.

Capabilities: Proven ability to establish and maintain radio communications between OA EOC/VOAD and CBOs during exercises including the three annual Golden Eagle and two Great Shakeout exercises. Ability to deploy and operate portable stations as needed to establish reliable communications in areas that are otherwise out of touch with the EOC/VOAD.

Resources: Develop and maintain the resources that may be needed to support the overall mission:

1. Operators – A corps of trusted radio operators with: (1) basic skills and a commitment to establishing radio communications when needed; (2) ongoing participation, training, and practice in accurately passing message traffic using a variety of basic analog and specialized digital means.
2. Mobile stations – Individual operators routinely test and maintain their own radio transceivers and related equipment including power supplies, which can be deployed to locations otherwise lacking reliable communications with the EOC/VOAD or between two or more CBOs.
3. Relationships – Establish on-going relationships of familiarity and trust between RCV operators and with key staff of served agencies, including EOC and VOAD.

North Bay Critical Mass Report

On Sunday, December 17 from 10-noon, The Monthly North Bay Critical Mass event was held at the Marin Civic Center. Here is a photograph and the agenda:



Our agenda for the day:

1. Check into the Sunday MARS radio net.
2. Phonetic Phun—please come prepared to phonetically spell the city of the birth of the ancestor of your choice.
3. Doug Kaye and I will demonstrate the use of two-meter radios for APRS tracking. Check it out here: <http://www.aprs.org/> And www.aprs.fi Of course, we will bring show-and-tell, hoping to get you onto APRS yourselves! See the excerpt from the APRS website below. You might get a Christmas gift idea here!

4. We will use at least a half-hour to practice operating in a faux public service event, with a net control and remote operating stations. We will simulate one of last season's events, but we'll use The Nickels simplex: 147.555, no pl. If time permits, we will actually pass one or two written messages. AND we may ask that you change to another simplex frequency on the fly.

To my friends on the Southern Marin Fire radio team: this is an excellent place to get radio practice—stop by if you can!

Seven-three,

Michael K6MLF

APRS was never intended to be just a vehicle tracking system (GPS was added in the 1992 time frame when GPS became affordable). APRS is much more. See the Kenwood mobile display above. This is the STATION LIST which shows the nearest 100 stations heard. In this case, not only are the two stations of AB9FX nearby, but also his current VOICE operating frequency is visible. Also, we can see that this radio is in OPERATING range of three voice repeaters that are also identifying themselves as objects on APRS as the [locally recommended voice operating channels](#).

Here's the official report from Michael Fischer K6MLF:

Thanks to the 12 hams who joined our presenters Doug K6DRK and Rob NZ6J this morning! And special thanks to those who brought doughnuts, cookies, cupcakes and even chocolates--

We gathered out of the rain under the civic center arch, AKA the wind tunnel.

Chilly though we were, we all managed to phonetically spell the birthplaces of our ancestors, from San Francisco to New York, Nigeria, Prague, Red Hook and the Uckermark. And we all managed to check into the Sunday MARS radio bnet using only our HTs. One of the benefits of the arch is that we could literally see the Tam Middle Peak input to the simulcast system and, with its greater elevation than the Jury Parking Lot, the Bahia input was great, too.

We spent the rest of the time learning about APRS tracking and its purposes. We saw various trackers in use: 500milliwatts, 1W, 5W and 50W versions. We saw not only the trackers and their iGates but also intermediate digipeaters. Using the Club's large monitor, Rob took us through the various screens of APRS.fi. APRS tracking is already common in the trucking and shipping industries as well as in first responders' vehicles. Our principal short-term ham radio uses are for public service events to track the location of SAG vehicles, course marshals and sweeps. Potential future uses would be to track CERT teams in the field, for instance.

Photo 6962 is a TYT dual band HT with GPS for \$87. Doug has offered to modify the firmware to make it a "one-piece" 5W radio-tracker:

<https://www.ebay.com/itm/256132238163?chn=ps&trkparms=ispr=1&amdata=enc:1429fy0aaQPSB4jHR2I15vA79&norover=1&mkevt=1&mkrid=711-166974-028196-7&mkcid=2&mkscid=101&itemid=256132238163&targetid=2252596264946&device=c&mktype=pla&googleloc=9032105&poi=&campaignid=20782499971&mkgroupid=154293413223&rlsatarget=pla-2252596264946&abclId=9337783&merchantid=113608200>

Photo 6963 is a 1W tracker plus digipeater for \$166:

https://www.ebay.com/itm/204133520440?chn=ps&trkparms=ispr=1&amdata=enc:1WRdZMTydSSynp0hyLrs6WA30&norover=1&mkevt=1&mkrid=711-117182-37290-0&mkcid=2&mkscid=101&itemid=504686810510_204133520440&targetid=1587268787897&device=c&mktype=pla&googleloc=9032105&poi=&campaignid=19894961968&mkgroupid=148855406073&rlsatarget=pla-1587268787897&abclId=9307911&merchantid=101684054

Dang, I forgot to take a photo of my X1C3tracker/digipeater for \$55 that attaches to an inexpensive 5W Baofeng HT--total price of \$80

<https://www.radioddity.com/products/baofeng-uv-5r-plus-two-way-radio> PLUS
https://www.aliexpress.us/item/2255800663120403.html?src=google&src=google&lbch=shopping&acnt=708-803-3821&slnk=&plac=&mtctp=&albbt=Google_7_shopping&lbagn=888888&isSmbAutoCall=false&needSmbHouyi=false&albcp=19623912707&albag=&trgt=&crea=en2255800663120403&netw=x&device=c&albpg=&albpd=en2255800663120403&gad_source=1&gclid=aw.ds&aff_fcid=d6813f5534c64ce3a965c35d7767985e-1702854483238-07615-UnaMJZVf&aff_fsk=UnaMJZVf&aff_platform=aaf&sk=UnaMJZVf&aff_trace_key=d6813f5534c64ce3a965c35d7767985e-1702854483238-07615-UnaMJZVf&termina_id=693b8d791c224da18ff0e14928a32c56&afSmartRedirect=y&gatewayAdapt=glo2us

As Doug said, this is the least expensive way of getting both a tracker and a digipeater, though the package is a bit more awkward--recall I used two yellow broccoli rubber bands to pair the two. It's not quite plug and play, but Doug has offered to program it for you if you get one.

Doug has also offered to build an advanced tracker and digipeater to be mated with a 50W radio for the cost of the parts--about \$135. That's the "box" on the table in photos 6960 and 6961. You provide the radio, antenna and power supply.

Photos 6965, 66 and 70 show Dan's, Rob's and Gerald's high-end Yaesu 5W handheld radios which include GPS and APRS trackers. The FT2D is out of production; the FT5D is almost \$500: Actually, if you purchase one by the end of this month from HRO, you could save \$100!

<https://www.hamradio.com/detail.cfm?pid=H0-017648> The benefit of these radios is that not only do they transmit a tracking beacon but they also (in Gerald's words) "harvest" the data and display the information that we were examining on the large-screen monitor. Look again at photo 6970.

Doug also solicited hams to help us experiment during this off-season with placing digipeaters to connect radio "holes" like the Steep Ravine steps, for example, with iGates like those on Mount Sutro, the Sunset District, Tam's East Peak fire lookout, Doug's house in Kentfield, and K6SSM in Berkeley. Several of us did, indeed, volunteer--fine business.

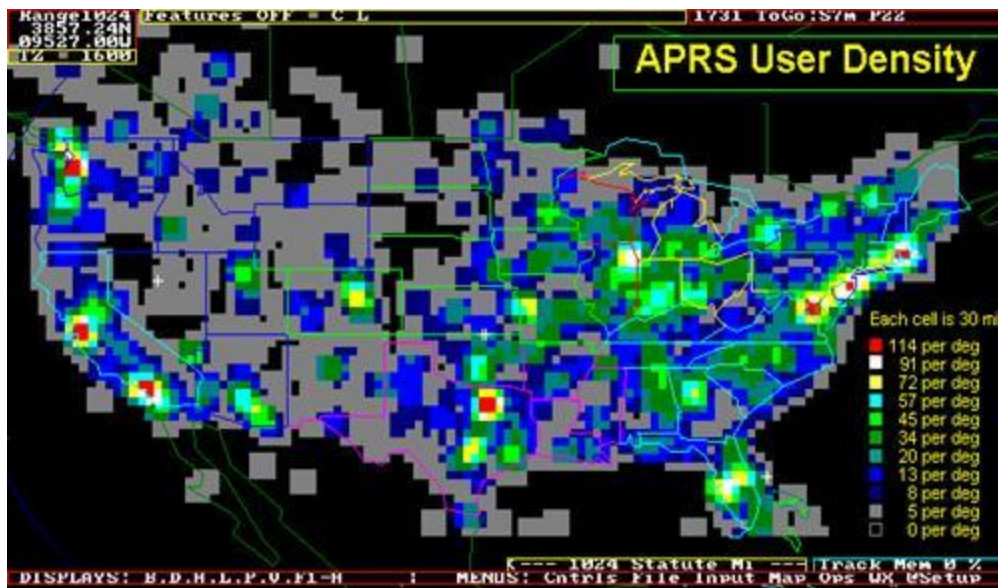
Now, the North Bay 2-Meter Critical Mass is actually a radio-practice gathering and I promised that we would do so today. But I wimped out. It was raining, it was chilly, the APRS gear and uses were intriguing, the goodies were so delectable...so we didn't engage in our usual radio practice. Apologies--next time, OK?

Happy Holidays, all!

Cordially,

Michael K6MLF

Finally: for those of you who are not on the North Bay 2-Meter Critical Mass listserve, I invite you to send an email to nb2mcm+subscribe@groups.io



This data from Steve's FINDU is plotted on APRSdos to show the user density in the USA in Feb 05. Although it appears that most of the USA is low density, remember that a WIDE5-5 launched anywhere in the remotest area will still get to the cities and add to the GRM there. And there are 100 times more low density users surrounding these cities on all sides that really adds up to heavy GRM. We recommend WIDE2-2 in ■ ■ ■ ■ ■ and surrounding areas. 3-3 only in gray ■ areas.

The grid size is 30 miles and each is averaged with all 8 of its surrounding adjacent grids. The file is over 11,000 stations.

But the great news is that the New n-N Paradigm is the right approach. It encourages WIDEn-N everywhere while letting the high density areas trap large values of N to prevent overload in their areas only.

WB4APR

APRS provides situational awareness to all operators of everything that is going on in his local area, whether it be Weather reporting, [traveler info](#), [Direction Finding](#), objects pointing to [ECHOLink and IRLP](#), or [Traffic reporting](#) and emergency response. All of this while providing not only instantaneous operator-to-operator keyboard messaging capability for [special events](#), but also an always-on [Voice Alert](#) backchannel between mobiles in simplex range. There is even an APRS interface to the WinLINK system called [APRSlink](#), so that mobiles can send and receive Email without needing a PC. Think of APRS as a signaling channel to reveal ALL amateur radio resources and live activities that are in range of the operator at any instant in time.

VE Examination News

The Marin Amateur Radio Society's VE Program is an extremely important component of amateur radio. The national program MARS is a part of allows member radio clubs to administer licensing tests on behalf of the FCC. What this means to people getting into ham radio is that there are more test locations and a more flexible schedule for taking the license exam. Ken Brown will be stepping down as Lead VE. Thank you, Ken, for your service and especially for teaching me how to be a Volunteer Examiner. Jim Saltzgaber, KM6WWY, has replaced Ken as Lead VE, effective at the end of the Board meeting.

The first scheduled testing session is on January 13th, 2024. The test starts at 1:00pm. Applicants should arrive at 12:30pm to check in with the VE team.

Quansheng UV K5/K6: Not Just Another Cheap Radio

My first radio, upon getting my Technician's license, was a Baofeng UV5R. I was amazed at the quality of the radio, considering the price (around \$30.00). Of course, I had to add a decent antenna (a Nagoya), but that only brought the price up to about \$45.00. It suited my purposes perfectly and I still bring it out and use it. Advances in technology have allowed the cost of a handheld ham radio to drop greatly, while improving the performance and added features. Baofeng cornered the entry level VHF/UHF market and seemed positioned to own that market for the foreseeable future. Then came along the Quansheng UV K5 and UV K6.

The Quansheng UV K5/K6 is a dual band handheld transceiver that has a 5W RF output. It has a frequency range of 50.0000-76.0000MHz, 108.0000-135.9750MHz, 136.0000-173.9750MHz, 174.0000-349.9750MHz, 350.0000-399.9750MHz, 400.0000-469.9750MHz, and 470.0000-600.0000MHz. It also has an FM radio with a frequency range of 76.000-108.000MHz. It has 200 channels and is voice activated. It also has weather scanning. This radio has a dedicated AM Airband that works surprisingly well. I was able to test this feature in multiple locations across the State of California during the holidays and was amazed at the volume of radio traffic I picked up. Below is an image of the UV K5:



The radio can be charged via a USB type c charging port that's built in. Yes, this sounds like a typical Chinese-made handheld. So, what's the big deal? You can mod this radio very easily with firmware that adds a spectrum analyzer and increases the RX (and TX but remember to only work your assigned bands) to 18.0000MHz to 1350.0000 MHz. The firmware is flashed onto the radio's IC Chip and can be additionally flashed online without using any downloaded software. You just plug a standard Kenwood/Baofeng programming cable into the radio and

your computer; select your firmware update choices and you're done in under a minute. Below is an image of the UV K6:



It turns out that there is a large and growing community of computer programmers who write code for this radio and present it in the open-source community. I bought one of these radios because the programming that was the foundation of this radio could be tinkered with. I realized that at \$30.00 or less, if I blew the radio up, replacing it wouldn't put me in the poor house. The firmware updates have worked wonderfully thus far. Here are the technical specifications of the UV K5 radio. Next month, we'll explore firmware modifications. We'll also compare the UV K5 and K6. I have both Quansheng models, so if you have any questions about this radio, feel free to email me at hthomaspatterson@gmail.com.

SPECIFICATIONS

GENERAL

Type:	Amateur VHF/UHF transceiver
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General market

TX: 136-174 / 350-470 MHz

RX: 50-600 MHz

Europe (CE)

TX: 144-146 / 430-440 MHz

RX: 50-600 MHz

USA (FCC)

TX: 144-148 / 420-450 MHz

RX: 50-600 MHz

Frequency range:	
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Tuning steps:	? KHz
Frequency stability:	±1 ppm @ -20 to +60°C (-4 to +140°F)
Mode:	TX: FM / NFM RX: AM / FM / NFM / WFM
Channels / memory management:	200 20 WFM broadcast channels 10 NOAA weather channels
Repeater shift / offset:	Programmable
Power supply:	7.2 VDC (Li-Ion battery)
Current drain / power consumption:	RX: ? mA TX: Max 1.5 A
Antenna impedance / connector:	50 ohm / SMA (Male)
Dimensions (W*H*D):	60*115*38 mm (2.36*4.53*1.5")
Weight:	234 g (8.25 oz)
Other features:	CTCSS/PL and DCS. LED flashlight. Backlit dot-matrix display. Scrambler. VOX. DTMF. 1750 Hz tone call. Desktop charging cradle or USB-C charging port. Voice prompt. Two roger beeps.

RECEIVER SECTION

Receiver system:	SoC?
Sensitivity:	AM (10 dB S/N) 108-136 MHz: 0.5 µV FM (12 dB SINAD) 50-76 MHz: 0.2 µV 136-470 MHz: 0.16 µV 470-600 MHz: 0.2 µV WFM (20 dB SINAD) 76-108 MHz: 0.71 µV
Selectivity:	
Image rejection:	
AF output power / speaker:	500 mW at 10% distortion / ? ohm

External speaker connector:

TRANSMITTER SECTION

		High	Mid	Low 1
RF output power:	2 m:	5 W	3 W	1.5 W
	70 cm:	5 W	3 W	1.5 W

Modulation system:

Max FM deviation (Factory set):	FM: ± 5 KHz NFM: ± 2.5 KHz
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Spurious emissions: Better than -? dB

Microphone impedance / connector:	? ohm / ?-pin
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Microphone input level: ? mV

MISCELLANEOUS

Manufactured:	China, 2023-202x
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Additional info:

Related documents:	
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Modifications and fixes:

Reviews:	
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Options / Accessories: BPK-5 Li-Ion battery pack. 7.2 V, 1600 mAh

Ham Radio News

Each month, QSA-5 searches the internet for stories about amateur radio in the news. As editor of our publication, I merely present these articles and do not take a position regarding their message or content. Our first article comes from Radioworld regarding the FCC bolstering amateur radio:

FCC Wants to Bolster Amateur Radio: The FCC will vote in November on a plan to remove outdated technical restrictions.

<https://www.radioworld.com/news-and-business/business-and-law/fcc-wants-to-bolster-amateur-radio>

Ham Radio May Speed Up Soon: An interesting piece from a online journal dedicated to advances in technology.

<https://hackaday.com/2023/10/29/ham-radio-may-speed-up-soon/>

No cellphone? No problem! The vintage radio enthusiasts prepping for disaster: Another reason amateur radio is so important!

<https://www.theguardian.com/us-news/2023/may/27/ham-radio-emergency-natural-disaster-climate-crisis>

Ham radio operators practice for emergencies, build community: A nice article regarding the importance of amateur radio.

https://www.southernminn.com/faribault_daily_news/news/ham-radio-operators-practice-for-emergency-build-community/article_c305405c-1446-11ee-9e1c-17bef3ed0921.html

How Far Will a Radio Transmit? This is very useful information to have, and it's well explained.

<https://www.radioddity.com/blogs/all/how-far-will-a-radio-transmit>

FCC Regulatory News

Here are the current regulatory changes and FCC news as it applies to Amateur Radio. This section of the QSA-5 newsletter was introduced last year. We will add new regulations and rules monthly, removing the older regulations and rules as new regulations/rules are introduced. As of the August 2021 issue of the QSA-5 newsletter, this list of FCC regulations and changes will be reduced, only covering this year's new regulations and rules. The newest regulations and changes will appear at the top of the list. Note that we are not able to cover every change the FCC has made this year within our publication.

FCC To Vote on Removing Symbol Rate Restrictions: From the ARRL regarding the digital modes.

<https://www.arrl.org/news/fcc-to-vote-on-removing-symbol-rate-restrictions>

Job Posting: FCC Recruiting Field Agents: In case any of you have wanted to become a field agent. Does it come with a badge?

<https://www.arrl.org/news/job-posting-fcc-recruiting-field-agents>

FCC Grants an ARRL Emergency Request to Permit Higher Data Rate Transmissions for Hurricane Relief Communications: The FCC has granted an [ARRL](#) emergency request for a 60-day temporary waiver intended to facilitate amateur radio emergency communications for hurricane relief.

<https://www.arrl.org/news/fcc-grants-an-arrrl-emergency-request-to-permit->

[higher-data-rate-transmissions-for-hurricane-relief-c](#)

Propagation News

Here are some links dedicated to propagation conditions, space weather, sunspot cycle information and all things related to solar conditions:

The K7RA Solar Update: This is the K7RA solar update, which is updated regularly:

<http://www.arrl.org/news/the-k7ra-solar-update-810>

DX.QSI Propagation: A simple, straightforward website for propagation conditions that is regularly updated:

<https://dx.qsl.net/propagation/>

Radio Society of Great Britain: What's New and Propagation Now:

A great resource from the UK version of the ARRL regarding solar activity and propagation:

<https://rsgb.org/main/technical/propagation/whats-new-propagation-now/>

SunSpotWatch.com:

A good general interest site for amateur radio operators who follow solar activity:

<http://sunspotwatch.com/>



DIY Radio References

We have added a few additional links to our list and will continue to do so as we discover more websites related to the Do-It-Yourself movement! QSA-5 is going to keep adding to the original list of online resources, bringing you more resources as we find them. If there is anything you think would be useful to other club members, contact me and I will be happy to include it in this reference section.

Microcontrollers and Single Board Computers: With the advent of the Arduino micro-controller board, the Raspberry Pi (a single board minicomputer) and Texas Instrument's Launchpad (also a single board microcontroller), Amateur Radio enthusiasts can build both accessories, such as antenna tuners, and fully functioning transceivers. I have spent the last year at the University of California studying these devices, learning how to use them and incorporate them into electronic projects. I was able to build two HF receivers based on the Arduino and Raspberry Pi devices. The best news of all is that these devices are inexpensive! I encourage you to check these websites out!

Arduino: The Arduino microcontroller board was the first to popularize these devices. They are inexpensive and can be used for a variety of radio related projects.

I will include some links to radio related Arduino projects in the next issue of the QSA-5. Here's a link to the Arduino homepage:

<https://www.arduino.cc/>

Raspberry Pi: Did you every wish you could have a PC small enough to fit into your shirt pocket? Your dream has come true. The Raspberry Pi 4 is a fully functional Quadcore 1.6 GHz computer, about the size of a package of playing cards. It has an Ethernet jack, two USB 2 ports, two USB 3 ports and two HDMI ports. Next month, I'll post some links to radio related Raspberry Pi projects. Here's a link to their homepage.

<https://www.raspberrypi.org/>

Texas Instruments TI Launchpad: The Launchpad is Texas Instruments answer to the Arduino. The Launchpad is geared more towards advanced projects and is slightly more expensive. However, the Arduino still holds it own against this device. The Arduino also has more in the way of opensource software. Here is a link to the TI Launchpad homepage.

<https://www.ti.com/design-resources/embedded-development/hardware-kits-boards.html>

Tools for electronics: It is a lot easier to build or repair your electronics if you have the right tool. Paperclips and duct tape are not the solution to everything (unless you are McGyver – hopefully, you got the reference). Therefore, we added some links to suppliers of electronics tools.

All Electronics: A one stop electronics shop that has a variety of tools for your repair and building needs:

<https://www.allelectronics.com/category/780/tools-and-supplies/1.html>

Jameco Electronics: A supplier of decent tools at a reasonable price:

<https://www.jameco.com/Jameco/content/tools.html>

Electronic Printed Circuit Boards (PCB): If you design and build projects that require specific circuit boards, you know how difficult it is to find a board that will work for your purposes. Designing a board and then having it made can be expensive. Here is a company that has a large number of radio PCBs you can purchase and then add components to. They also can take your design and fabricate a PCB at a very reasonable cost. The company's name is **PCBway**:

<https://www.pcbway.com/project/>

Electronic Components and Parts: Many of us involved in amateur radio are constantly tinkering with electronics. It seems to be part of our genetic makeup! Here are some links to companies that sell electronic components and parts, starting with San Rafael's own Electronics Plus (Support local business).

Electronics Plus: It's great to have an electronics store close by for those times when you need a part immediately:

<https://www.electronicplus.com/>

Digikey: A good source for DIY and Maker projects as well as parts. They claim to have the world's largest selection of electronic components.

<https://www.digikey.com/>

Jameco: This company is a good source for almost everything, especially mainstay items such as resistors, capacitors, etc.

<https://www.jameco.com/>

Homemade Antennas: Many new amateur radio enthusiasts put a great deal of time and effort into researching their first radio. However, they often neglect the

most important component to a successful radio experience, the antenna. Even if you have some ham radio experience, antennas can be a daunting subject. Commercially manufactured antennas can be expensive and beyond your budget during these hard financial times. Even if you have the funds available to purchase an antenna, reading through the antenna's specs can be akin to reading some long lost ancient language. A good solution for increasing your knowledge of antennas and radio wave propagation, not to mention cutting the costs down, is to build them yourself. Here are some links to DIY (do it yourself) sites to give you a start:

Antenna building basics:

<https://www.wikihow.com/Build-Several-Easy-Antennas-for-Amateur-Radio>

Good Reference for several antenna types:

<https://www.hamradiosecrets.com/homemade-ham-radio-antennas.html>

A step-by-step guide for building a simple antenna:

<https://geardiary.com/2012/07/21/building-a-simple-ham-radio-antenna-without-soldering/>

Instructions for a VHF/UHF dual band antenna:

<https://www.instructables.com/Quarter-Wave-Dual-Band-VHFUHF-Ham-Radio-Antenna/>

Build an HF dipole antenna:

<https://www.electronics-notes.com/articles/antennas-propagation/dipole-antenna/hf-ham-band-dipole-construction-80-40-20-15-10-meters.php>

Introduction to antennas:

<https://www.onallbands.com/ham-radio-antenna-options-for-home-and-portable-operations/>

Ham Radio QRP Transceiver Kits: With the advent of SDR (Software Defined Radio), building fully functioning ham radios has become a lot easier and extremely inexpensive. While, having fewer bells and whistles, as well as being low power units, many have fully functional touchscreens and cover many of the HF bands:

An easy to build QRP transceiver. No soldering needed to build:

<https://www.hfsignals.com/>

An easy to build, single band CW kit:

<https://qrp-labs.com/>

Offering several kits and finished transceivers:

<https://youkits.com/>

Propagation Websites: Propagation is a key factor in successful radio communications. Here are some links to websites that will help you with all your basic propagation needs:

Real time band conditions:

<https://qrznow.com/real-time-band-conditions/>

VOACAP band conditions:

<https://www.voacap.com/hf/>

ARRL Propagation Page:

<http://www.arrl.org/propagation>

Real Time HF Propagation Prediction:

<https://hamwaves.com/propagation/en/index.html>

Ham Radio Websites of general interest:

Ham Radio News: Here are some sites and articles you may find of interest regarding ham radio.

ARRL News Page, which is a good place to find national news regarding ham radio:

<http://www.arrl.org/news>

QRZ Now. Another good site for ham radio news from around the globe:

<https://qrznow.com/>

The Amateur Radio Newsline. An AP styled news feel page for amateur radio:

<https://www.arnewsline.org/>